

Claims

1. Hydromechanical clamping device which in one end thereof is designed as a mandrel pin with an outer envelope surface onto which one or more tools may be mounted, **characterised in** that

5 the mandrel pin comprises outer expanding means (6), the outer surface of which consisting of said envelope surface, with a relatively thin, radially expandable wall and a conical inner surface in the axial direction, the mandrel pin further comprising a centre pin (8), the outer diameter of which being smaller than the diameter of the inner surface of said means, wherein in the space between the centre pin (8) and the expanding means there are arranged intermediate means (7) connected to a piston (9), which intermediate means (7) are displaceable in the axial direction by means of hydraulically 10 operating means, wherein the intermediate means (7) and the outer expanding means (6) have interacting conical surfaces which at axial displacement of the intermediate means in one direction cause radial expansion of the outer expanding means 15 (6), wherein axial displacement of the intermediate means in the other direction causes relief with radial contraction of the outer expanding means (6).

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2. Clamping device according to claim 1, **characterised in** that the outer expanding means (6) and/or the intermediate means consists of a sleeve (7).

25 3. Clamping device according to claim 1 or 2, **characterised in** that the hydraulic means include a pressurisation chamber (12) arranged at one end of the piston (9), and a relief chamber (13) at the other end of the piston (9), which chambers (12, 13) are capable of being filled and pressurised by a hydraulic 30 pressure medium.

4. Clamping device according to any of the preceding claims, **characterised in** that the conicity of the intermediate sleeve (7) is arranged such that the diameter of the intermediate sleeve (7) increases towards its outer end.

5 5. Clamping device according to any of the preceding claims, **characterised in** that the interacting conical surfaces have a conicity so as to be self-locking.

10 6. Clamping device according to any of the preceding claims, wherein the piston (9) is arranged in a chamber, **characterised in** that a sealing means, preferably in the shape of a sealing ring (18), is arranged between the piston (9) and a cylindrical outer wall of the chamber.

15 7. Clamping device according to any of the preceding claims, **characterised in** that a sealing means, preferably in the shape of a sealing ring (19), is arranged between the centre pin (8) and the intermediate sleeve (17).

20 8. Clamping device according to any of the preceding claims, **characterised in** that a sealing means, preferably in the shape of a sealing ring (21), is arranged between the outer sleeve (6) and the intermediate sleeve (7).

25 9. Clamping device according to any of the preceding claims, **characterised in** that the device is substantially integrated in the part intended for mounting in a machining device.

30 10. Clamping device according to any of the preceding claims, **characterised in** that the device consists of an integrated portion of a machine spindle.

11. Clamping device according to any of the preceding claims, **characterised in** that the clamping device have follower bores and/or follower pins for connection to corresponding follower pins and/or follower bores of the tool.